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# Phil Riley's z/OS Diagnostic Techniques

(Visit [www.epstrategies.com](http://www.epstrategies.com) for class schedule and pricing.)

A week of learning and doing!

## **Audience**

This three-and-a-half-day intensive seminar is intended for system programmers who require knowledge of z/OS SVCDUMP diagnostic techniques.

## **Seminar Abstract**

The seminar presents an in-depth discussion of the approach required to identify, within an SVCDUMP, the failing component, module, and instruction. Historical data taken from a variety of traces and system control blocks is used to gain perspective in the flow of control leading to the point of error.

**Note: Standalone dump analysis is not covered in this seminar.**

Lecture material is reinforced with the use of lab exercises. IBM's Interactive Problem Control System (IPCS) dialogs are used to analyze a variety of dumps.

## **Prerequisites**

A basic understanding of z/OS internals and control block structures is assumed.

## **Seminar Objectives**

In this seminar, students will learn how to:

- Use IPCS to navigate an SVCDUMP in detail and to generate analysis reports
- Follow module flow of control using information taken from Request Blocks and Linkage Stack Entries
- Use the formatted System Diagnostic Work Area (SDWA) control block to gain knowledge of the point of failure
- Find and interpret low level historical information in the System Trace
- Create a Generalized Trace Facility (GTF) trace data set and interpret the various record types
- Start a Virtual Storage trace to analyze problems with virtual storage acquisition and release
- Use IBM documentation to check a system-created SVCDUMP title for pertinent information
- Create SLIP traps to capture information pertinent to anticipated error situations



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## **Seminar Outline**

The following is a high level outline for this seminar:

### **IPCS**

- Dump directory
- Symbol table and Map entries
- Inventory list
- Primary command vs. Subcommand usage
- Addressing techniques and data descriptors
- Formatting and listing control block structures
- SUMMARY and STATUS reports
- Miscellaneous analysis subcommands
- Hardcopy print functions
- Control block chain analysis
- Browse mode and navigation methods
- Entry, Pointer stack and Storage panels

### **Recovery and Termination**

- Recovery Termination Manager (RTM) functions
- RTM and interrupt handling
- RTM flow of control and recovery routines
- ESTAE, FRR and ARR recovery environments
- System Diagnostic Work Area (SDWA) control block
- Recovery Termination Manager 2 (RTM2) control block

### **Request Block and Linkage Stack Analysis**

- Request Block (RB) usage during interrupt handling
- RB contents and analysis
- Linkage stack structures
- Linkage stack entry contents
- Owning module identification
- SVC module naming convention

### **System Trace**

- Starting the System Trace
- Formatting the System Trace
- Interpreting System Trace entries

### **Other Traces**

- Starting the Master Trace
- Formatting the Master Trace
- Interpreting the Master Trace entries
- Starting the Generalized Trace Facility (GTF)
- Entering GTF trace parameters
- Formatting the GTF Trace
- Interpreting the GTF Trace entries
- Starting the Virtual Storage (GFS) Trace
- Formatting the GFS Trace
- Interpreting the GFS Trace entries
- Starting the GFS Tracking facility
- Using RMF and IPCS to format tracking data
- Starting the Component Trace
- Component Trace External Writer



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- Formatting the Component Trace

#### **SVCDUMP Environment and Analysis**

- Generating SVCDUMPs
- Dynamic SVCDUMP allocation
- Scheduled vs. Synchronous SVCDUMPs
- Dump Analysis and Elimination (DAE)
- Multi-system SVCDUMPs
- SVCDUMP analysis review

#### **SLIP Processing**

- Program Event Recording (PER) traps
- Use of Control Registers
- Dynamic PER activation
- RTM controlled traps
- SLIP command syntax
- Use of RBLEVEL, DATA, REFBEFOR, REFAFTER
- Multi-system SLIP processing
- Dump and trace option processing controls



### Seminar Dates and Location and Prices

For dates and locations and prices, please visit [www.epstrategies.com](http://www.epstrategies.com) for details, or call our office at 813-435-2297. Seminars are regularly offered in the USA and Europe.

### **Instructor**

**Phil Riley**, Principal of Phil Riley Systems Consulting, has worked in the mainframe environment for over 37 years. He began his career working for Rolls Royce in his native England and decided to immigrate to Canada in 1973. After working with the installation of the first releases of MVS, he joined Amdahl Canada in 1977 as a Systems Engineer, specializing in MVS support and diagnostics. After being hardware trained to support Amdahl's mainframe product line, he was sent to Europe for 18 months to assist with hardware and software support in England, the Netherlands, Belgium and Sweden.

In 1985, **Phil** left Amdahl to join some friends who were forming an outsourcing company known as Aaski Management. The company was granted a marketing assistance role by IBM, whereby the two companies worked together to help IBM improve the sales of their mid-sized mainframes. Companies that were signed up with one of Toronto's data processing service bureaus then found they had a cost-justified alternative way to run their data processing operation using their own processor, either located in their own Aaski-built data centre, or in Aaski's own computer room where they were given remote access. **Phil** was responsible for the design of the 10,000 sq. ft. data centre, together with the installation and management of environmental, large-scale computer and communications hardware. He was also responsible for the hiring of operations and technical support staff, and the direct support of several MVS systems. He managed the projects for the successful conversion of six clients from service bureau to in-house environments.

**Phil** returned to Amdahl in 1991 to work as an instructor in their education division. His extensive knowledge of the MVS operating system plus mainframe architecture, his experiences at Aaski, and his desire to work in a teaching environment made him an ideal candidate for this role. When he became self-employed through downsizing in 1994, he continued to work under contract, not only for Amdahl, but also for IBM and several other companies specializing in large system education. **Phil** now has over 14 years experience in teaching, and has delivered open enrolment and contract classes throughout Canada and the United States, plus the Middle East, China and India. He specializes in z/OS internals and diagnostics, assembler language and hardware configuration.

### **For More Information...**

For more information on this or other seminars, including prices and locations, please contact:

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Please do not hesitate to call if you would like more information or details on this seminar. Peter will be happy to talk with you.

### **In-house**

All seminars are available for in-house instruction.

